

**VII. Vesico-Urethral Suture and Uniting of the Symphysic Fissure for Congenital Exstrophy of the Bladder with Epispadias.** By DR. G. PASSAVANT, (Frankfort on the Main). Of the previous procedures for treating this trouble, some have achieved partial success, especially Trendelenburg's plan, (*ANNALS OF SURGERY*, Feb. 1886, p. 168) of forced approximation with suture of the symphysic ends, and Demme's method, (Dr. Mörglin, 1855) of slow approximation by means of a compressing belt. P. advocates a plan based on essentially the same idea as Demme's. He considers that the pathology of this affection is of great importance in determining the treatment. Hence, he describes the condition in detail from 2 adult and 2 new-born subjects, and 6-8 patients.

The frequent statements, particularly in older works, that certain of the parts or structures are wanting, is not generally true. They are only displaced or misshapen. The ureters become dilated. In a preparation from an old woman they admitted a thumb. The pelvis of the kidney may also participate in the distention. Frequent causes of death are inflammation of the ureters, pyelitis, urethritis, and peritonitis. The statement of most authors that in congenital exstrophy the absent symphysis is replaced by a fibrous ligament, he finds to be incorrect. However, behind the position occupied by the symphysis in the norm. extends a band upcurved in the adult,—or ligament if only form and not histological structure be regarded.

It is most intimately connected with the bladder, and consists of the same tissue, principally smooth muscular fibers. Only at the ends is it partly tendinous representing the pubo-vesical and pubo-prostatic ligaments and the tendinous arc of pelvic fascia with the pubo vesical muscles arising therefrom. In the new-born this symphysic band is higher; in the adult, it flattens as the cleft widens, the bladder also settling down more and more.

In a preparation from a man of 18 years, he also found faulty ossification of various pelvic bones. There was no bony union any where between the 5 sacral vertebræ. nor between the lateral processes of the lower 4. The ilio-sacral synchondroses also permitted mobility. The ilium and pubes showed but slight osseous union. The inner surface

of the sacrum was not concave but nearly flat. The great sacral notch was narrower than usual, and the sacro-spinous and sacro-tuberos ligaments correspondingly were correspondingly shorter. Consequently, the pelvis is narrower antero posteriorly but over wide transversely. This shortens the perineum.

Here the erectile bodies of the penis lie on its lower side. The bulbo-cavernous muscle is flattened, runs more transversely, and is not attached as normally to the outside but to the inside of the corpora cavernosa. In reality this depends on the corpora having turned half round. The muscle is attached just in front of the point where the bodies are flattened to the pubic bones. Here the corpora have to bend inwards to meet, and at the same time, they make  $180^{\circ}$  twist (out and downwards around their long axis).

Sections of the penis show that the corpora, as regards their albugineæ, are not united as in the normal and do not develop a single septum. There are two veins on the dorsum of the penis instead of the usual one. If each corpus is freed from its tissue connections and both are turned out and upwards, these two veins come together at the back of the organ. The cause of the half-turn in the corpora must lie principally in the cleft symphysis. The fact of its occurrence has never before been fully stated. In the female the relations are so different that no analogous change can occur.

Preparation for vesical suture. Approximation of the pubic bones, introduction of the bladder into the abdominal cavity and dilatation of the bladder.

He bases his method of treatment on the anatomical peculiarities briefly described above. His plan consists of a preparatory and an operative part. Of the former only does he treat in this article. The approximation of the pubic bones is permitted by the yielding of the ilio-sacral synchondroses. The advantages of the slow method are freedom from possible dangers (of the rapid method) and more natural readjustment of the various structures. This must be accomplished by continuous actions, as on interruption it retrogrades rapidly, and the synchondroses loosen, instead of becoming firm in the new position. Various points for the application of pressure are necessary that when one suffers another place may be substituted for a time.

Demme's leather girdles, with or without steel strips, too easily become hard and spoiled by the urine. Flat vulcanized rubber rings—used as tires on small wagon wheels—with rounded edges and tightener or fastener answer very well. The parts must be neared very slowly. Every-day inspection is necessary to avoid ulceration. A folded napkin between the legs helps cleanliness—if frequently changed. The child in its girdle may even run about a little.

A second (alternate) method of compressing the pelvis consists in laying the child so that the pelvis shall lie in a V-shaped cleft. This is simply made of two blocks of wood with their adjacent sides sloping to a hinge.

For a large child each block may be 18 cm. long, not quite as high, and 9 cm. thick. The angle at the hinge is something less than  $90^{\circ}$ —the less the angle the greater its action and vice versa. Of course, the angle can be decreased by wedging under the free end of either block, or increased by elevating the joint. The cleft walls are cushioned with leather down as far as the child's pelvis will sink. The child above and below is to be supported on the same bed by mattresses and cushions. Cleanliness necessitates a rubber cloth beneath and a urinary vessel just below the blocks. In this way simply direct lateral pressure is exerted on the pelvis and not pressure all around as with the girdle. Still, he has seen good results from the girdle. He leaves the child half a day in the cleft, then has it get up awhile with the girdle. He has had no success with girdles intended to act, like the cleft, from the sides. These touch the body at the back, but bridge free across in front. Still, a girdle with a screw arrangement may be recommended during and after suture.

As the pubic bones approach, the exposed bladder gradually recedes a little and takes on a more normal appearance. Its abnormal breadth diminishes and to a less extent it gains in height. Only the upper part is, in consequence of the abdominal pressure, still inclined to prolapse. It is now time to begin to dilate the bladder and accustom it to the proper place. For this the slowly inflowing urine is very suitable. His attempts, however, at closing the bladder water tight were unsatisfactory. By means of a little rubber arrangement ('sage-

femme') fastened either by a rubber bandage, or by a sheet of gutta-percha tied to the girdle and thigh-straps he succeeded partially. Another plan, however, proved more feasible. A small rubber bag is inflated, at first only to the size of a pigeon's egg. This is placed against the upper part of the bladder, after elevating the pelvis. The string and the mouth end lie upwards, and thus the urethral openings are left free. A circular plate of gutta-percha—its rounded edges extending a finger's breadth beyond the vesical border—holds this in place. The rubber girdle serves for holding this in place, except at its lower part where a second, triangular piece of gutta-percha is fastened above to the girt and below to the thigh straps. When the child lies in the split block the bladder has less tendency to prolapse and the plate can be retained by a rubber bandage. After the pubic bones begin to approach, the lower part of the bladder settles back and the ureter mouths are more protected.

For suture of the symphysis any approximation of the pubic bones less than contact is unavailing. When the latter can be achieved and the soft parts have lost some of their abnormal width, all is ready for suture, and this may include the bladder.

Some experiments as to the elasticity of the pelvis showed that in two cases cleft symphysis in the new-born, gaps of  $1\frac{1}{2}$  and 2 cm. could be quite overcome by lateral pressure; in the cadaver of a  $2\frac{1}{2}$ -year-old girl, after exsection of the pubic arch, a compression of  $1\frac{1}{2}$  cm. was possible; in the cadaver of a 9-year old boy 1 cm. was possible; whilst in the cadaver of a young man but little compression was possible without infraction. Hence he concludes that puberty is the age-limit for achieving much by the method of slow compression.—*Arch. f. kl. Chir.*, 1886, bd. 34, hft. iii.

VIII. On Rupture of the Bladder Produced by Filling. By Dr. E. ULLMANN (Vienna). In the ANNALS OF SURGERY for January, 1887, some cases and experiments by Von Dittel, bearing on this question, were quoted. Besides 7 variously reported cases Ullman gives 2 new ones. These occurred from injecting the bladder in litholapaxy. By suprapubic openings and drainage both patients (a